providers. Too often, especially in the poorest countries, the framework is inadequate, dealing with only the most basic requirements, such as practice entry and facility registration. In particular, users' access to effective and affordable redress through administrative and judicial channels is often inadequate. The oversight role of health professional councils may also be limited. Conversely, in some circumstances lowering regulatory barriers may help: for example, the availability and use of contraceptives have improved through lowering regulatory and import barriers to product availability (Zimbabwe), relaxing advertising restrictions (Pakistan), and broadening the types of private providers who can administer injectable contraceptives (Egypt).

Free services for target groups

The way in which services are financed may offer mechanisms for limiting costs to service users and could be used to promote quality of care. Free services for specific target groups such as pregnant women, children, and commercial sex workers and for priority services such as tuberculosis, sexually transmitted infections, and family planning deserve consideration. Fee exemption schemes, especially if targeted to particular groups, are costly to administer and may be difficult to scale up to national level. The most powerful levers operate where medical aid schemes and insurers influence the prescribing habits and services provided by private providers by specifying what diagnostic tests and drug treatments must be offered if the provider is to be paid. However, insurance schemes usually cover a minority of the population in many poor countries.

The potential of these strategies will depend on the context and the capabilities of various stakeholders, especially the state. The poorest countries, with impoverished populations and many untrained and unregulated providers, face the biggest obstacles, especially given their weak public sectors. Principles that should govern state collaboration with private providers include recognising that access to quality and affordable health care is a right; that ensuring access for poor people is a policy priority; and that the mechanisms to enhance influence of users should be promoted.[11]

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Cardiovascular complications of recreational drugs

Are an important cause of morbidity and mortality

The consumption of recreational drugs has reached epidemic proportions. Forty five million European Union citizens have used cannabis at some time, with proportionately higher use among younger people.[1] The consumption of harder drugs such as cocaine and heroin is rising, with an estimated 1.5 million problem users in the European Union. Drug use is commonly associated with complications, including an increased risk of premature death.[1 2] In particular, recreational drugs have profound effects on cardiovascular function. Some studies suggest that adverse cardiac events are relatively uncommon,[1 3–5] though recent data from the United States indicate that one in four myocardial infarcts in people aged 18-45 years can be linked to cocaine use, suggesting that variation in definitions may contribute to under-reporting.[1 6]

Many physicians will encounter patients with cardiovascular problems related to recreational drug misuse. In addition to the problems posed by self administration, massive overdoses may occur in individuals who attempt to smuggle illegal drugs by ingesting packets which rupture in the gastrointestinal tract; and inadvertent ingestion of recreational drugs by children has been reported. Successful management can be difficult, since many patients will be unwilling or unable to provide an accurate history. An awareness of the pathophysiological effects of these compounds is therefore an important aid to diagnosis.

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Cocaine, ecstasy, and amphetamine share similar adverse effects on the cardiovascular system, related predominantly to activation of the sympathetic nervous system. Cocaine acts by inhibiting norepinephrine reuptake in peripheral sympathetic nerve terminals as well as stimulating central sympathetic outflow.[7] Circulating catecholamine concentrations can be raised as much as fivefold.[8] Amphetamine and its derivative ecstasy produce indirect sympathetic activation by releasing norepinephrine, dopamine, and serotonin from central and peripheral autonomic nervous system terminals, and serious cardiovascular complications have been well documented.

Sympathetic activation can lead to varying degrees of tachycardia, vasoconstriction, and unpredictable blood pressure effects, depending on the dose taken and the occurrence of coexisting cardiovascular disease. Hypotension as a result of a relative catecholamine depletion state, paradoxical suppression of the central nervous system (amphetamine), or acute myocardial depression (due to ischaemia or a direct toxic effect of the drug) can occur. Myocardial ischaemia and infarction may be related to the raised catecholamine concentration causing an increase in oxygen demand, coronary artery spasm, platelet aggregation, and thrombus formation. Repetitive episodes of coronary artery spasm and paroxysms of hypertension may result in endothelial damage, coronary artery dissection, and acceleration of atherosclerosis. Paroxysmal increases in blood pressure can lead to aortic dissection or valvular damage, which increases the risk of endocarditis.

Cocaine and amphetamine have been associated with non-cardiogenic pulmonary oedema and a dilated cardiomyopathy. The adverse cardiovascular changes and sympathetic stimulation associated with these agents predispose to myocardial electrical instability and a wide range of tachyarrhythmias. The class 1 antiarrhythmic properties of cocaine can impair cardiac conduction, precipitating conduction defects and bradyarrhythmias, including sinus arrest and atrioventricular block.[9]

The mechanisms of action of the hallucinogens lysergic acid (LSD) and psilocybin (magic mushrooms) are complex, with various effects on serotonergic, dopaminergic, and adrenergic receptors. These drugs have mild adrenergic effects, producing manifestations of sympathetic arousal such as dilated pupils, sinus tachycardia, hypertension, and hyper-reflexia. Cardiovascular complications are rarely serious, although the potential for arrhythmias and myocardial infarction exist.[9]

Morphine and its semisynthetic analogue heroin are the most commonly misused narcotic analgesics, accounting for almost half of drug related deaths.[10] They act centrally to increase parasympathetic and reduce sympathetic activity, resulting in bradycardia and hypotension. Various bradyarrhythmias and tachyarrhythmias have been reported.[9] Bacterial endocarditis, affecting mainly right sided cardiac structures, is a well known complication of intravenous narcotic misuse. Non cardiogenic pulmonary oedema (which may not develop until 24 hours after admission) can occur in heroin overdose.[11]

Volatile substance misuse is a common problem in adolescents, with most deaths occurring in boys. In the United Kingdom butane gas lighter refills—which are cheap and easily available—are the most commonly misused substances.[5] Cardiac arrhythmias are the main cause of sudden cardiac death. Tachyarrhythmias may be induced by sympathetic activation or myocardial sensitisation to circulating catecholamines.[12] Some volatile substances can reduce sinoatrial node automaticity and suppress cardiac conduction.[9] Myocardial ischaemia and infarction as well as a poorly characterised cardiomyopathy have been reported.[9]

Cannabis is the most widely consumed recreational drug. Low or moderate doses increase sympathetic and reduce parasympathetic activity, producing a tachycardia and an increase in cardiac output. Higher doses inhibit sympathetic and increase parasympathetic activity, resulting in bradycardia and hypotension. The haemodynamic effects of consumption of low or moderate doses increase myocardial oxygen consumption, reducing the threshold for induction of angina in patients with pre-existing coronary artery disease. These adverse haemodynamic changes may also trigger plaque rupture in vulnerable individuals. The risk of plaque rupture is short lived, and induction of myocardial infarction is rare.[13]

All these drugs have important effects on cardiovascular function that significantly contribute to adverse events. Most adverse cardiac events occur in young adults and are potentially reversible. The key to diagnosis is a high index of suspicion, particularly when unexplained or unusual cardiovascular problems occur in association with central nervous system dysfunction, together with awareness of the pathophysiological effects of the drugs. There are no adequate randomised controlled trials to guide therapy, which is based principally on an understanding of the cardiovascular actions of the drugs, along with experience gained from observational studies.[9]

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A key medical decision maker: the patient

New decision making aids should help patients make the decisions

Primary care pp 490, 493

Many medical decisions fall into a grey area where the optimal choice for an individual patient may be unclear and where reasonable people might choose differently. Common examples include elective surgical procedures, such as lumbar discectomy or resection for benign prostatic hypertrophy. Drug treatment may pose similar choices when treatment offers both appreciable benefits and appreciable risks. Hormone replacement therapy in postmenopausal women is an example, as is anticoagulant therapy in patients with non-valvular atrial fibrillation. Decisions about such treatments are made daily in clinical practice, and there is considerable evidence that patients want more information and greater involvement in them. In general we do a poor job of providing information, though this week's *BMJ* includes studies of two examples of a new generation of interactive methods of patient information that holds promise of improvement.[1 2]

Decision aids are more than handouts

Although physicians often describe the nature of decisions to their patients, they less often discuss risks and benefits and rarely assess patient understanding.[3] Though invasive procedures require "informed consent," it usually takes the form of seeking patient agreement with a recommendation, rather than quantifying the risks and benefits of alternative approaches. When well informed, patients often make different decisions from their physicians. Based on hypothetical scenarios patients appear less likely to want antihypertensive therapy than physicians, particularly when baseline cardiovascular risks are low.[4] In a randomised trial patients given a well balanced decision aid chose anticoagulation for atrial fibrillation less often than those receiving routine care.[5]

The printed material in doctors' offices (from commercial publishers, consumer groups, and professional societies among others) is often inadequate.[6] Patients often find that it is too simple or too technical; excludes discussion of treatments they are interested in; and offers too little information on treatment efficacy, self management, and prevention. Specialists find that many materials offer false impressions of treatment effectiveness, emphasising benefits and minimising risks.[6] Higher quality materials, incorporating formal decision aids, might facilitate better treatment decisions as far as patients are concerned.

A new generation of decision aids differs from older patient education materials in several ways. These new aids make choices explicit, rather than implying a preferred course. They use the best available evidence (generally from systematic reviews and randomised trials) to quantify the benefits and risks of alternative approaches. Most are interactive, allowing patients to obtain information tailored to their own age, disease severity, and comorbidity. Typically they make use of media in addition to print. The examples described in this week's issue used interactive computer technology, permitting patient commentaries, animated graphics, and other visual aids (pp 490, 493).[1 2] However, decision aids need not rely on high technology. Other effective aids have used simple charts, graphics, and audio narration.[5 7] Randomised trials suggest that these tailored interactive approaches engage attention and transmit information better than the traditional "patient handout."[7 8]

A systematic review suggests that this new generation of decision aids improves patient knowledge, reduces decisional conflict, and stimulates patients to play a more active part in decision making without increasing their anxiety.[9] Reduced decisional conflict means that patients feel more comfortable with their choices and decisions are more congruent with their personal values. The aids have little effect on patient satisfaction and a variable effect on the decisions made. They have often reduced preferences for more intensive forms of elective surgery (with equally good outcomes),[9–11] but increased preferences for vaccinations.[9] A Cochrane review on this topic is currently under way and is expected late in 2001.[12]

Using computers and the internet

This week's articles make a useful step towards studying decision aids in primary care, rather than specialty settings. The study on postmenopausal hormone replacement suggested that computer based interactive decision aids were highly acceptable to both patients and physicians in primary care and reduced decisional conflict.[1] Much the same conclusion was drawn about a decision aid for benign prostatic hypertrophy.[2] No clear differences on patient choices emerged, nor were there clear differences in use of health services or costs. Unfortunately, neither study had enough statistical power to identify important dif-

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